



Chelmsford Amateur Radio Society

Established 1936

Affiliated to the RSGB
President: Harry Heap G5HF
Secretary: Martyn M3VAM

Club Call Sign: G0MWT
Chairman: John Bowen G8DET
Treasurer: Brian Thwaites G3CVI

Newsletter No 481

Web Address: www.g0mwt.org.uk

March 2006

This Month's Meeting - Tuesday, 7th March. 7-30pm at the MASC Weather Satellites by Andy Tyler, G1GKN

The talk will cover the following topics:

A brief history of weather satellites from the early 1960's to the present. What's up there -
A description of current weather satellites and the technical challenge of receiving them.
Reception equipment, Receivers, antennas and other hardware. Computers and software.
The future - The first all-digital weather satellite due for launch this year.

A live Demo - orbit permitting. The live demo will be dependent on a suitable orbit, at present this looks like NOAA 17 at around 21:41pm.

Come along and find out how you can provide a more accurate weather forecast for where you live in the near time; maybe even predict when long distant contacts may be made.

Dates for Your Diary

Sunday 4/5 March	ARRL International DX/SSB Contest
Sunday 4/5 March	RSGB VHF Contest 14:00 for 24hrs
Monday 6/5/23 March	RSGB Club Championship Contest
Sat/Sun 11/12 March	RSGB Commonwealth/CW Contest. 10:00 for 24hrs.
Sat/Sun 25/26 March	CQ WW WPX/SSB Contest. 48hrs
Wednesday 15 March	CARS Committee Meeting. DVH 7:30pm. All Members welcome.
Tuesday 7th April	CARS Monthly Meeting - MASC – 7:30pm. - RNLI

International Marconi Day

CARS celebrates the Birthday of Marconi on the nearest Saturday, which this year is the 22nd April. This is where CARS is looking for Operators and your support. We always have a core of Operators but would like to see more of the M3's, 2E0's & M0's attend. You do not have to Operate but why not get the feel of the operation by Logging. If you really feel you cannot Operate or Log, please turn up and Host - simply to tell the members of the public what is happening.

Brian, G3CVI would like to hear from you. E-Mail him on g3cvi@g0mwt.org.uk

Our grateful thanks to Denis and Joy for posting this Newsletter. Could it have gone by E-Mail?

Please keep our Membership Secretary, informed of any changes to your callsign or E-Mail addresses, etc.

For further details contact our Programme Secretary: Martyn M3VAM on 01245-469008 or look on the CARS Web Site.
Club Nets: Tuesdays 8-30pm: (2nd) 145.375 : (3rd) 1.947 : (4th) 1.947 : (5th) 145.375. All +/- QRM.

Making his third visit to the Club, Tom as usual, came laden with all manner of interesting items to show us, most of them hand made. He also came with lots of experience of operating under differing conditions in both mobile and fixed modes. He called his talk 'Picnic Table Operation' inferring that lightweight, /P minimum equipment operating was the aim. As with any operation, pre-planning always pays dividends and Tom would decide beforehand what bands he would use, the type of antennas, where and how to deploy them and with weight limitations in mind, how to get there.

Describing UHF/VHF antennas he discussed in turn a 'rubber duck', a 'J' pole, a Slim Jim and a Yagi. The first, generally suitable for local use only. The 'J' pole, made from ladder-line, could be rolled up for transport or fixed to a pole or hung up in use. Tom took one out on a five-mile walk and using a GPS system was able to make a plot of his position at various points along the route. Although the Yagi produced the best overall results, it was only suitable for fixed operation. The Slim Jim was Tom's favourite and he found it to be the most efficient of all the single element antennas and very light indeed, as it was made from plastic pipe and aluminium tube. All bar the rubber duck, Tom had made.

Turning next to HF operation, the choice is wider, but in most cases, if not all, an Antenna tuner is a necessary item, as is a good earth. Lightweight supports are also required. Choosing between horizontal or vertical operation is the next decision and ground conditions and whether local or DX operation is required come into the picture. Tom has found that the horizontal is better on average ground and salt marsh, where as the vertical is not so good on average ground. Tom showed us a number antenna plots giving the various lobes. The vertical however was much easier to deploy requiring only one support, and using either $\frac{1}{2}$ wave or $\frac{1}{4}$ wave elements and tapped coils, they can be very efficient.

A good earth and a tuner are necessary. For his earth system Tom uses so called 'pigtailed': these are large corkscrew type devices which are used to keep caravans tied down in windy weather, and are easy to get in and out of the ground. Counterpoises, which are generally a $\frac{1}{4}$ wave long, can in cases be much shorter without a too drastic change in results. Tom showed a number of counterpoise wires taped together in groups for various bands. Supports take various forms and can be fishing rods, aluminium painter's poles or trees, but in that case a catapult or a bow and arrow might be required.

Tom then showed in detail some of his handmade antennas and ancillaries, in many cases made from household items or adapted from other uses. A practical vertical using a collapsible Roach pole, jumbo size coil with tails at each end and croc-clip tapping points. The coil was constructed with centre hole made to fit halfway down the pole in use, to form a centre loaded $\frac{1}{4}$ wave antenna. Together with a 4:1 balun and the ubiquitous tuner and a counterpoise it made a very effective lightweight device.

Moving on to Mobile antennas, these could be horizontally polarised, long wires, inverted Ls, (V3EDP) Doublets, and dipoles: plain and loaded. The doublet is a simple device but could be made multiband, but again with the use of a tuner. The radiation pattern varies according to the band in use, and may be predicted. The well-known G5RV is a form of doublet. Tom had a number of such tuners, one of which was an auto-tuning device made by LDG Electronics. A collapsible Dipole then made its appearance, made from plastic tubing in the form of a T. Ex Army collapsible 8-foot whips were fixed to each end of the T section and could quickly be assembled to form a very efficient antenna. Again, it has the advantage of requiring only a single support.

Tom passed round the audience numerous other artefacts, all of which raised favourable comments. One such item, purchased this time, was a wind-up device for drawing chalk lines in building work. Normally containing chalked string, Tom had removed the string and replaced it with thin wire. This provided a very quick and easy way to lay and then retrieve a counterpoise. Attaching the free end to the central earth point, the right length of wire could be pulled out and easily and neatly wound up again and the end of the QSOs. We saw a number of Baluns and special connectors he had constructed for his special requirements. During the break we had more time to examine the items and ask questions.

Tom's fine talk was very well received by an enthusiastic audience, some of whom came some distance to learn more about lightweight radio operating on the move and stationary.

Our Thanks to Tom for another interesting and well illustrated presentation.

Report by Colin G0TRM

Mains Power Consumption, by John G8DET

In last month's Newsletter I opened up the topic of the popular press of over stating the Standby Power Consumption in equipment in the home. However, check your power & see if you could cut down.

Well, Greenpeace may have been right if they were referring to very old TVs. Colin has lent me his Power Monitor and I have been able to check my consumption. A number of other people have added their figures (I do not own all of the equipment below!). Following the table there is report by Ken Whittle, G7RFT; you will see he has gone to great lengths to make his detailed measurements and save energy.

Amateur Radio	Full-On In Watts	Stand-By In Watts
Maplin Mains to 12Volt, 8 Amp PSU	As Drawn	20
Mains to 12Volt plug-in PSU	As Drawn	8
BHI NES 10-2 Noise Limiter	1	1
Kenwood TW4000A Trans/Receiver - On Rx	7	
On Tx - 8Watt/30Watt output FM	60/120	
Watson 12v 3A P/Supply recharging an Alinco DJG5	10.5	
Kenwood TS 850 HF T/R +12v PSU (100w RF out*)	475*	Rx 45

TV & HiFi	Full-On	Stand-By
Philips 28" CRT TV (3 years old)	48	2
Panasonic 28" CRT TV (5 years old)	55	1.8
Bush 28" CRT TV (New with Freeview)	45	1.5
Bush 21" CRT TV (Mono - 6 years old)	34	2
Bush 21" CRT TV (4 Years old)	50/75	2.5
Panasonic 14" CRT TV (Mono - 8 years old)	34	<1
Sony 32" CRT TV (3 Years old)	95	2.21
Philips GR11AX Colour Portable (8 Years old)	30	6
Thomson FreeView DT 1000 (1 SCART)	8	8
Thomson FreeView DT 1500 (2 SCARTs)	10	8
Topfield HD Personal Video Recorder (30GByte HD)	55	14
Denon HiFi System DM7	26	19
Sony Mini-Disk Recorder	15	1.5
Tagan DVD Player	20	1
Panasonic F55, Video Recorder (1992)	20	2
Nokia 3716 Mono Video Recorder (1996)	14	<1

Computer Equipment	Full-On	Stand-By
Belkin 650Watt Non-interruption PSU	As req'd	10
Mitsubishi Diamond Pro 740SB 17 inch monitor	35	3
Pentium II 350 MHz Computer (2 HDs)	140	
HP 4100 Scanner (12Volt Powered)	10	1
Dell Laptop 14" - PSU runs very hot!	30	
Packard Bell Pentium 4, Sony TFT Display HP Printer	100	13.5
Evesham Pentium 4 Computer with TFT screen (15W)	110	75
Panasonic KX-F2700, Telephone/FAX	<1	<1

Fridge & Freezers	Units/Week
Siemens Upright FrostFree Freezer (A+ Energy Class) 9 cubic ft	4
Philips Chest Freezer - 9 cubic feet (20 years old)	7
Liebherr Upright Freezer (A Energy Class) 7 cubic ft	4.5
Liebherr Upright Fridge (A Energy Class) 8.5 cubic ft	3.5

Mains Standby/Power Consumption.

By Ken Whittle G7RFT

My interest in looking at mains standby power came about from the assertions of Friends of the Earth, and others, that TV sets should not be left on standby when not in use. This is because they were using significant power in that mode and our survival was thus under threat in respect of CO2 into the atmosphere.

Using a Digital Voltmeter and a modified distribution board with a precision one ohm resistor inserted in the neutral return I slowly remembered that power factor needs to be taken into consideration when looking at any load other than a purely resistive one. I worked out that my Bush TV was only taking about 25mA on standby, but at what power factor?

The solution to this dilemma was found by using an electricity meter (purchased at one of the Clubs tabletop sales) to measure consumption in the same manner as the (old) Electricity Companies. The initial result was that the test meter did not move at all, but some tests with resistive loads showed that "stiction" was the culprit at powers below about 6 Watts. The stiction of my auxiliary electricity meter was overcome by adding a load of about 10 Watts to the test rig (Two 11k 10 Watt vitreous resistors in parallel) and subtracting the appropriate amount from individual measurements.

Later measurements using a Digital "Mains Power & Energy Monitor" purchased from Maplin (Part No L61AQ) shows that the power is indeed about 2.5 watts but 10VA and Power Factor of 0.25

The Electric Company Meter at my residence is labelled 166.67 revs per Kilowatt Hour, and this gives a calibration of 21600 divided by the (no of seconds per revolution of the disc) to give the power consumption in Watts. I established that my auxiliary electricity meter rotates its disc at the rate of 300 revs per Kilowatt Hour and its calibration conversion constant of 12000 divided by (no of seconds per rev of the disc) to get the power in watts. I have carried out a number of tests at various power levels and confirmed that the two meters agree closely.

Now the shock horror!.... Checking the standby load at my residence with all the obvious things like freezers, lights etc switched off I recorded a revolution rate of the company meter of 183 secs per rev which converts to 118 watts. It doesn't sound much, but as it is running 24 hours per day 365 days per year it amounts to 1033 Kilowatt Hours per Annum and represents about 20% of my total consumption

Measurements of various standby consumptions using my auxiliary electricity meter identified my Denon HiFi system consuming about 20 watts. This was quickly cured by the installation of a separate on/off switch, (the only loss is that the clock display is absent when switched off, but who needs so many time indications?).

Reorganisation of my computer equipment (Packard Bell, HP Printer, Kodak Camera Dock, Compaq 4/66, Proview Display, Canon Scanner & Packard Bell Scanner) onto a single on/off switch saved another 20 watts. The hunt for the remaining 80 watts continues, about 13 watts goes to powering my TV Preamps, the Digifusion Freeview receiver (with 40GB hard drive) consumes another 23 watts 24 hours per day and the Sharp VCR & DVD Combo consumes another 5 watts, so about half the outstanding power has been identified and I propose to reduce some of this with use of a timeswitch.

The rest is probably distributed in small amounts in various time switches and other gadgets around the house. Another close check on the standby power will be made soon now that I have the Digital Mains Power & Energy Monitor as measurements with this instrument are more convenient than those involving the timing of an electricity meter disc. First I have to establish its accuracy at low power levels as the specification is slightly vague - I propose to use resistive loads for these tests.

The technical interest for me from this exercise has been to get consistently accurate measurements (getting several methods to agree). Also a revisit to the principles of power factor measurement and exercise of old knowledge of vector representations of such data, which was planted in my brain over fifty years ago at the Mid Essex Tech. The bonus is the knowledge that I shall go a long way to avoiding the recent increase in electricity prices (12% from my supplier) and do a small amount to reducing demand on the grid.

Remember, 20 Watts, 24 hours per day uses 175 Kilowatt Hours per year, which costs about £14 in February 2006 @ 8p/Unit. Who is now on 8p/Unit? It will however cost even more as time goes by.

John, G8DET has carried out some measurements in this area and his results are tabulated above and I have added some of my results to his table.

Report by Ken Whittle, G7RFT

Chris Carroll, G3WWC - Silent Key.

Report by Patrick M0XAP

I first met Chris at a Canvey Rally I think 2 years ago. An unassuming chap, he chatted amiably and was clearly entertained by the mass of humanity around him, but was already seriously ill. He helped me find the item I was looking for. Subsequently we had over 20 QSOs including CW, his far outclassing mine. He also successfully experimented, late on 15th Jan 05, with an antenna tied to a balloon.

He had a quiet but rich sense of humour, enhanced by a good intellect. He participated in various nets including the 1,875m one on Friday evenings at 20.30 onwards where on the 16th December last he announced in a matter-of-fact tone that his cancer was terminal; he also expressed the desire to receive QSL Cards from all his pals.

I last saw him at his home on New Year's Eve; he said, "You're a Doctor? Pour out my medicine for me. That should be easy for you." He would never allow the situation to as it were get on top of him.

At his funeral on the 26th of January at Chelmsford Crematorium were present from CARS: -Harry G5HF, Denis M0FHA and myself; the Chapel could have been filled twice over with mourners.

Our sincerest condolences go to his Wife, Trish and Family. We shall all miss him.

FEEDBACK

This section is reserved for items where more information has come to light since a previous Newsletter has been published.

Two E-Mails received to say that Trevor's Super-Radio at £2.99 item was even better value for money than as published as they were reduced to £2.49 in the Sales and then £1.49 - any left?

A "Thank You" to the Radio Clubs & individuals who sent Christmas Cards to CARS. In particular CARS would like to mention the Loughton & Epping Forest Amateur Radio Society who sent a nice card signed by many Members.

An e-mail has been received from Bill Pechey, G3CUE, pointing out that he is the Hon Secretary of the British Top-Band DF Association and invites those interested to look at their Web Site. This has a number of Links to the events they are involved with.

<http://www.topbanddf.org.uk/05finalres.htm>

Bill & Doreen live in Reading & send their best wishes to CARS. Bill is thinking about retiring but has not actually taken the step yet.

As Geoff, G7KLV, stated in his article in the CARS January N/L, Bill was a past CARS N/L Editor.

Trans-Atlantic Co-Operation Gives Chelmsford Amateur an ISS Contact

Chelmsford Amateur David Barber, G8OQW made a 70cm QSO with International Space Station Commander Bill McArthur KC5ACR on Sunday 15th January thanks to the help from CARS Member David Worboys, M0ZLB/KG4ZLB who is currently in Florida. David, M0ZLB/KG4ZLB heard Bill calling CQ from the Space Station using the call-sign NA1SS on 437.550 MHz as it flew past Florida.

He immediately sent an email out on the Essex Amateur Radio Yahoo Reflector to alert people that the Space Station was active. David, G8OQW saw the email and started calling NA1SS from the outset of visibility (prior to hearing it). The fact that all previous ISS passes that day were packet on 145.800 MHz meant that no one else knew he would be on 437.550 MHz. For a few vital seconds nobody else was calling the Space Station and, G8OQW's call had a chance of being heard.

When NA1SS replied to G8OQW's call, Bill said that he had heard his first call in the clear; it was then swamped by all the other stations.

This was David G8OQW's second QSO with the International Space Station. His first was last November on 2 metres. David has now worked the Space Station on all the Amateur Bands that it is equipped for.

Trevor, M5AKA & David, M0ZLB/KG4ZLB

CARS Member - ISS Contact

CARS member David Worboys M0ZLB/KG4ZLB set up the equipment so the pupils at Pine Ridge School could talk to the Astronauts onboard the International Space Station.

David reports that on Thursday, 9th Feb they had a successful ISS contact at 15.24 UTC). He said that he "held his breath until Bill McArthur, KC5ACR returned the call but it was a great event attended by local dignitaries, media and of course the pupils. Should have my ugly mug on a news broadcast later today!". - PS, NASA webcam'd the event.

Thank you David & Trevor for the report.

Battery Life - Can You Beat This?

While using a hand calculator the other day, I realized that it still had the original batteries in it, and was still working well.

This amazed me - I bought this calculator in 1975, just prior to spending a while working in Libya, where it was in constant use in job related activities. A quick look at the unit showed that the batteries were 3 off of 1.5V - the usual flat round type, to give 4.5V.

The unit is a Sharp EL-5103, a Scientific Calculator, which at the time cost the proverbial arm and a leg, but can do a multitude of functions.

One of the most useful is the ability to key in a mathematical formula, with up to 100 separate sub-sections, put in values for the sub-sets, press "run" and let it solve the equation. One or more figures can then be altered, and "run" produces the new answer. It was ideal for doing radio problems that were very repetitive e.g. in propagation analysis work.

I also used it in my spare time to work out the internal power dissipation ratios of high-power RF attenuators under various mismatch conditions, which enabled me to build the various units you may have seen demonstrated in the past. The equations for this are quite horrendous! No doubt the same formulae on a PC nowadays could produce a 1,000 page printout of all incremental values in the time I took to get one answer in a series.

Can you beat 30 years for a battery life in a unit that has been used throughout the period (and is not solar-powered as well!)?

Dave, G3PEN

Enter the Dragon – Jingtong Handhelds

The Jingtong 2m and 70cm 2-watt FM handhelds are available for £39:99. Duncan M0KGK will be bringing his 2 metre Jingtong to the next club meeting for members to see during the break. As you may recall Duncan is the member who donated the G5RV logbook to CARS. Duncan writes: -

The Jingtong JT-208 and related JT-308 are handheld VHF and UHF transceivers respectively which are being knocked out at a frightening rate for the growing number of building sites and other portable communication needs in China. They are available in the UK from <http://www.jingtong.co.uk/>

My Father, GM4KGK recently bought a pack of five 2 metre ones which worked out at about £23 each. He

gave one to me last month and has been passing them round at cost to the local ops in the Highlands and Islands including Dave Roberts of SWM and Monitoring Monthly fame, whom I believe is very pleased with it.

It comes with a drop in charger base, which uses a Chinese two pin mains plug. An adapter is supplied for UK sockets so you just plug in and go.

The supplied antenna is, as you would imagine, not all that special. I can just about hear a weak signal from GB3DA on it. Using an adapter from SMA to BNC (this is not supplied), I've used a BNC based Watson super-gainer antenna. This gets me clear reception from GB3DA here in Witham, and I did hear Colin G0TRM running the Tuesday night Chelmsford ARS net and sounding superb.

I haven't tried TX on it, although I'm warned that the TX audio can be a bit muffled. There's a bodge you can do to drill a small hole in the case that's supposed to improve things no end although I haven't tried this yet.

The battery is decent, and the thing works on standby for days. Audio output is generous and all the normal goodies are on there like CTCSS, different channel spacing, repeater offsets, etc.

This is the general feature list for the JT-208:
Pwr/Vol, squelch controls - 1.8-2.5W output power
±5kHz deviation - Sensitivity 0.16uV (12dB SINAD)
15 channels - 5/10/12.5/25kHz step
Direct frequency entry - Channel scanning
Frequency scanning - Keypad lock
± split operation - CTCSS (38 frequencies)
Battery 7.2V NiMH, 600mA TX, <100mA RX,
20mA standby - Blue LED backlit display

For the money, it's excellent and I have only found one thing that I don't like about it. When you first switch on, it produces a series of rising audio tones. These cannot be switched off and are pretty loud.

The manual is not all that useful because of the poor translation between Chinese and English which yields gems such as "lock cirtle frequency compose technology" which I'm guessing means PLL.

All in all, an absolute bargain at £40 and even better still if you club in with your chums and get a "trade pack" which gets the cost down even more. A pack of 5 costs around the same price as a single equivalent Japanese "handie".

Duncan Munro M0KGK
<http://www.m0kgk.co.uk/>

Canvey Rally Sunday, 5th February.

As in past years CARS attended this years Canvey Rally and managed to raise some money for Club funds, not so much as in the past but still worth the effort put in by the sales team. It would seem that members have responded to requests for sale items in previous years, and garages, sheds, lofts and shacks are now clear of superfluous equipment.

Nevertheless, our thanks to those who did manage to come up with some worthwhile goodies. A number of very bulky items found new homes, which pleased Geoff KLV very much as he now has space in his garage for his car and some room to start collecting for Canvey 2007.

The Rally was well attended by visitors and for a while business was brisk at most tables. A number of well-known traders were present which was very good to see. Congratulations to the Canvey Club Rally organising team who, with a minimum amount of help ran a very efficient event, with both halls in use and a good supply of excellent sandwiches and hot drinks.

Colin G0TRM

March Contests by Steve G4ZUL

ARRL International DX / SSB

4/5 March, 48HRS

Exchange: RS + transmitter power.

Categories: Single op. = all band, single band, high power,

Low power, QRP.

Multi op. = single TX, two TX, multi TX.

Scoring: 3 points per QSO.

Multiplier: sum of states/provinces worked.

Final score: QSO points x multipliers.

Further information & rules from

<http://www.arrl.org/contests>

RSGB VHF Contests

4/5 March: - March 144/432 MHz (24Hour)

Starts 14:00 UTC Saturday

Finish 14:00 UTC Sunday

Please refer to the RSGB website

<http://www.rsgb.org/vhfcc> for full details of all VHF contests, or look for the VHF contesting calendar in January Radcom, page 33.

For any further information please email

Steve G4ZUL contests2006@g0mwt.org.uk

RSGB Club Championship

This contest runs from February to July each year and is a series of short evening contests.

Dates are as follows:

SSB: 06 March 20:00 - 21:30 LOCAL

DATA: 15 March 20:00 - 21:30 LOCAL

CW: 23 March 20:00 - 21:30 LOCAL

Please try to support these short contests and send your log by email to HFCC using the excellent free

SD contest logger by EI5DI, download from

<http://www.ei5di.com/>

RSGB Commonwealth / CW

11/12 March, 10:00 - 10:00 UTC, 24HRS

Bands: 3.5, 7, 14, 21, 28Mhz

Exchange: RST + serial number

Sections: Open, 24HRS Restricted: 12Hrs

Scoring: Contacts with commonwealth prefixes

5 points and a bonus of 20 points for each of the first

3 contacts with each commonwealth call area on

each band. Further information and rules from

<http://www.rsgbhfcc.org/>

CQ WW WPX / SSB

25/26 March, 48HRS

Exchange: RS + serial number

Categories:

Single operator (single band & all band)

Multi operator (single TX, Multi two, Multi TX)

Scoring: 3 points on 28, 21, 14MHz /

6 points on 7, 3.5, 1.8Mhz.

If on different continent and if same continent then

1 point & 2 points respectively.

Prefix multipliers: The no. of valid prefixes worked.

For full details please refer to February issue of

CQ Magazine or <http://www.cq-amateur-radio.com>

Foundation Courses

Congratulations to the nine candidates who passed their Foundation exam in mid-February at the Danbury Village Hall. They should by now have all received their new callsigns. A group picture taken after the exam can be seen at

<http://www.g0mwt.org.uk/training/photos/p-found.htm>

We are now taking bookings for the next Foundation course, which starts Thursday 25th May. To book a place contact the Training Co-ordinator Clive Ward G1EUC Tel: 01245-224577 Mob: 07860-418835 Email: training2006@g0mwt.org.uk

Web: <http://www.g0mwt.org.uk/training>

73 Trevor M5AKA

20m QSO with Peter 1 Island

At 0804 Z on Valentine's Day, 14 February 2006 I heard 3Y0X answering a large pile-up. He was transmitting on 14,190 kHz and listening between 14,200 and 14,210 kHz.

I transmitted on 14,209 and he came straight back. Most of the QSOs he was making at the time were into Europe and near enough for me not to hear this end of the QSOs. Hence it was a bit of a gamble to know whether I was sitting on any other Europeans. The band had just opened to Australia and New Zealand at the time on the long path and for them I beam with my homebrew 3-element linearly loaded 15/20m duobander Yagi, on a heading of 240°. (Loading is inside the dural tubing so no bulges as in more usual traps).

For the 3Y0X QSO I had turned the beam to the south. The Yagi is at 26m above ground, which is 115m asl here and falls away to the south in about 1 km. So the take off is good to the South Atlantic. At the time they were working without all their gear as the weather was making unloading from the ship difficult. The transceiver was an Icom 726.

Geoff G3EDM

Lighting

The electric light bulb provides light by heating up a piece of wire in a glass bulb - most of the energy dissipated is in heat. As this is fed from the 50Hz mains, some of the time there is little light from the bulb - the persistence of the eye filling in the darker pieces! Output being slightly pulsed at 100Hz.

The long fluorescent tube then appeared & improved the efficiency considerably. The coating on the inside of the tube improved the light output, hence improved efficiency. However, it flickers badly at 100Hz which some people can see and in certain cases can produce eye fatigue, headaches, patterns with computer monitors, TVs & rotating lathes, etc.

More recently, "HF Economy Bulbs" have appeared, either as a plug-in replacement for the glass incandescent bulb or exceptionally to replace the choke unit in the long fluorescent tube fitting and a fraction of the cost they were 20 years ago.

They are more efficient but are usually "over sold" as to light output, by 20%. To compensate for the fact that the incandescent bulb produces no light for 2 parts of the whole cycle, the Electric Light Meters are calibrated to account for this, while Photographer's

Light Meters are calibrated for daylight, which is at a higher frequency!

A 20 Watt HF = nearer 80 Watt traditional bulb, NOT 100W, as usually stated.

The "HF Economy Bulbs" usually run at 35kHz. Running lower than 16kHz, and they could be heard, whilst to run much above 40kHz means there could be interference suppression problems for no advantage. The pulses of light are now at 70kHz, providing near continuous stress-free output.

The HF Ballast uses transistors - giving another efficiency improvement. They run better with the glass "bulb" uppermost in a well-ventilated fitting. They start nearly immediately (1 sec) but do take 10 to 15 minutes to give their best light output. The design switching cycle is 3 hours on/15mins off, rather than continuously switched on & off (shortens their life). 20,000 on/off is a typical max. At less than £3 per unit - use as you wish!

If the HF Ballast fails, it is designed to produce a puff of self-extinguishing smoke - not to burst into flames.

The plug-in HF bulbs come now in 1, 2 or 3 tubes, rated from 7 to 26 Watts. 7 Watts is quite enough to illuminate a garden as a security light while two 26W units will really produce some light in the shack.

Epson Printer Repairs

It has come to my attention that Epson have (at last) set up a network of authorised repair Centres.

<http://www.epson.co.uk/support/express/>

The above Web Site requests you enter your Post Code & it informs you of the nearest Centre to which you take your machine. One is quoted in Chelmsford, Burnham on Crouch & Colchester.

Unfortunately the Web Site indicates that this procedure only works for the more modern series of machines which include Stylus C20, Stylus Photo and Perfection series. It maybe possible to encourage these Centres to look at older machines, but at least it is better than nothing!

John G8DET.

Contributions are appreciated for the Newsletter. Cut-off date for the April N/L is 17th March.

Edited by John, G8DET with the Assistance of Colin, G0TRM & Murray, G6JYB.